CARE INTERNATIONAL MOÇAMBIQUE

Oil Press Enterprises in Nampula
(OPEN)

Evaluation of Phase I
(October 1994 - March 1996)

and

Recommendations Regarding Phase II

USAID Project # 656-0217
Grant # 656-0217-G-00-5001-00

Robert Strauss, San Francisco, USA, Team Leader
Gimoro Laker-Ojok, Kampala, Uganda, Team Member

30 January 1996

Executive Summary

- Phase I of the OPEN project has met or surpassed nearly all key targets stipulated in the project plan. Locally produced oil and the press technology have been quickly accepted in all four districts of the project.

- Concentrating efforts and resources on the agricultural, technical, and commercial aspects of the project has resulted in a significant demand for presses, oil, and planting seed. Dropping the institution building and credit components has had no apparent negative effect on project performance in terms of press utilization and seed and oil production.

- Poor infrastructure will help protect the market for locally produced oil for the foreseeable future. Even if commercial oil becomes more widely available, the high cost of transportation is likely to guarantee a market for locally produced oil.

- Given the project's success at stimulating the market, the targets established for Phase II in the project proposal should be revised upwards. The acreage planted this season is likely to produce significantly more seed than can be readily processed by the currently installed pressing capacity. OPEN should move quickly to procure sufficient presses to meet likely demand.

- Demand for presses cannot be met by local production in the immediate future. Development of local manufacturing capability will require significant training and logistical support from CARE with no certainty that local fabricators will be able to match or beat the price of imported presses. OPEN should regularly monitor conditions for local manufacture, but defer actual manufacture until more favorable circumstances prevail.

- The prices of project inputs in the pilot phase included significant subsidies as part of the design. This policy should be replaced by a more realistic, market-oriented approach. The price of seed and presses must be significantly increased in Phase II to reflect their true market value.

- In Phase II, OPEN will need to develop a cost-effective delivery system for oilseeds and presses. Project activities should be optimized to minimize administrative procedures and travel time while maximizing contact with farmers and potential press owners.

- OPEN must now focus its experience and efforts on bringing the oilseed sector in the target area to a "critical mass" as quickly as possible. This means raising production to a level that stimulates profit-oriented enterprises to provide the services and markets currently undertaken by OPEN.

- A commercial, cost-conscious, private sector orientation should pervade all thinking and decision making within OPEN. In Phase II employee productivity, as measured in press and oil sales, and area under cultivation, should become key indicators of project success and efficiency.

- Overall, Phase I of the project has done an outstanding job of promoting the press and oilseed cultivation in Nampula Province. OPEN is well positioned for immediate and substantial expansion of oilseed cultivation, press sales, and oil production in Phase II.

  The challenge now is to implement a follow-up strategy for the sector that builds on the strong momentum created in Phase I that will allow private sector entrepreneurs and market forces to continue building the edible oils industry when CARE's intervention ends.

Project Background

The OPEN project is based in Nampula Province of Northern Mozambique (see Appendix B). Once known as the "breadbasket" of the country, Nampula and its population of 3.5 million has suffered from a series of political and economic calamities over the last two decades as has all of Mozambique. These include the destructive exodus of the colonial Portuguese, a centrally planned, socialist economy, a civil war that displaced millions while destroying much of the country's infrastructure, a devastating drought, and an extremely heavy foreign debt service. The combined legacy of all these events has made Mozambique one of the world's more difficult development environments.

Since the mid-1980s, Appropriate Technology International (ATI), working with other organizations, has been developing the ram press, a small-scale technology for the production of edible oil. In Tanzania and elsewhere, these presses have been installed by rural entrepreneurs in areas where edible oil was unavailable or unaffordable. Mozambique, with its extremely difficult transportation network and highly depressed industrial sector, appeared to be a place where small-scale technologies could be viable as income generators as well as sources of food security in the difficult to reach rural areas.

CARE, which has been active in Mozambique since 1984, began assisting the government with emergency relief operations in Nampula Province in 1987. In Phase I of the OPEN project, four districts of the province were selected for participation based on their history as former oilseed production areas. A three phase project was conceived

Phase I, which will end March 31 after 18 months of activity, was designated as a pilot period in which to test different presses, seeds, and the market's response to them. Local institution building and technology dissemination were envisioned as the focus of Phase II with wide spread, commercial dissemination occurring in a third phase that was not articulated in the project proposal.

In Phase I, the project combined introduction of presses and distribution of seed with intensive extension work among a small number of press owners. The project's intent was to stimulate interest and test the market, but not to assess the ultimate commercial viability of small-scale oil production. Inputs such as agricultural training, seeds, presses, and business supervision were, therefore, all provided at prices that did not reflect their cost to CARE.

Response to Phase I activities have been extremely favorable.

To kick-start production in the first year approximately 3 tons of planting seed were distributed for free. The number of planters participating in OPEN exceeded the target by 160% (2625 vs. 1000). This year approximately 7.2 tons of seed is being sold[2] by OPEN. The project multiplied 2 tons of seed on its own, purchased 3.2 tons from SEMOC, and another 2

[2]OPEN currently subsidizes the price of planting seed, buying it from contract farmers at 3000 meticais/kg and selling it at 1100m/kg for sunflower and 1500m/kg for sesame. Seeds supplied by SEMOC, the parastatal seed company, are purchased by OPEN at 12,000 meticais/kg and re-sold at the above rates.

tons was purchased from local growers. OPEN expects this amount to be augmented by 2 tons of seed planted by farmers from their own stocks. Preliminary indications are that both the number of farmers and acreage under oilseed cultivation will increase dramatically over the first planting season.

This enthusiasm for the project is also reflected among press owners. OPEN plans to expand the number of presses in the field from 19 to 33 this year. That now appears to be significantly below what the market in the four districts would absorb if more presses were made available. All the press owners visited during this evaluation indicated they would like to buy one or more presses in anticipation of this year's harvest and were willing to pay 35% more than was changed last year[3]. CARE's extension workers report numerous, unsolicited requests to purchase presses by individuals and merchants not currently involved with the project.

Evaluation of Project Performance

Achievement of Outputs[4]

OPEN has attained or exceeded all the critical output performance levels stipulated in the grant agreement. The project plan listed the following key[5] outputs for Phase I:

Sale and Installation of 16 presses (4 per district)
Design of credit scheme for press purchases (for Phase II)
Seed distributions
Development of a repair and manufacturing capacity
Technical and commercial monitoring
Institutional development with local partner (UGC)

Sale and Installation of 16 presses (4 per district)

Nineteen presses have been sold. CARE paid a Zimbabwe firm $200 per press[6] and sold them at the same price to OPEN's customers. That price did not include the cost of transport and delivery or any administrative costs incurred by OPEN with regard to the initial

---

[3] In the first year of press sales (1995), the price was 1.6 million meticais, approximately $200 US delivered. Current press owners were not deterred by a possible 1996 price of 3 million meticais, or $272 US at the current exchange rate of 11,000 meticais = $1.00 US.

[4] All figures are based as of the time of the evaluation or as reported in the project implementation report for the period ending December 31, 1995.

[5] The grant agreement listed 10 activity outputs. The evaluation team considers these 7 to be the critical outputs. For a complete list of outputs and achievements, see Appendix D

[6] This is the price for the BP-30 press imported from Zimbabwe. The project also imported four "New Dawn" presses at $750 each from a manufacturer in Swaziland as part of OPEN's mandate to test different press designs. Poor design and quality control problems with the New Dawn have made it unworkable in Nampula. OPEN has attempted to resolve the problems with the manufacturer but without success.

order and purchase of the presses.[7] As discussed in the recommendations for Phase II section, future sales price should be adjusted to include these costs. On average, the presses have been extremely profitable for their owners. A break-even analysis was done for each owner which, given the simple nature of operating the ram press, more than constitutes an "appropriate" business plan as was stipulated as part of the grant agreement.

Press owners were trained to maintain simple, visual records to assist with OPEN's data collection. They were also trained and advised on an on-going basis regarding optimal pressing conditions and machine maintenance. Press owners interviewed during this evaluation indicated that they now felt fully capable of running their enterprises without further OPEN business training.

Design of credit scheme for press purchases (for Phase II)

OPEN replaced the idea of a lease/purchase scheme in Phase I with the options of an outright cash purchase or a credit purchase repaid over three months. Of the 19 press owners, 3 paid cash and 16 bought on credit. All accounts were fully paid with no delinquencies.

The three month credit program developed by OPEN is much less unwieldy than the lease/purchase scheme originally proposed. With Mozambique's high rate of inflation,[8] a long-term credit program could have exposed OPEN to significant depreciation of its working capital fund. The three month scheme included interest at the rate of 14% per month based on a declining principal balance after a 30% down payment. All loans were guaranteed by a written contract that allowed repossession of the press in case of non-payment. Even with the rapid repayment period and high rate of interest, all of OPEN's customers were able to break even. The most profitable press owners achieved returns on their investment of over 100%.

A new credit scheme has not been designed for Phase II. Based on the acceptance and performance of the one used in Phase I there appears to be no reason to alter it except to adjust interest rates as may be necessary from time to time.

There has been some interest on the part of press owners and seed growers for OPEN to establish a working capital credit scheme so that crops can be sold immediately upon harvest to pressing facilities. Growers in cotton zones are accustomed to this system and would like to see it implemented by OPEN.

Becoming involved in even a simplified, small-scale working capital loan scheme will greatly increased OPEN's administrative workload at a time when it should concentrate on expanding oilseed production. The credit program should remain restricted to press purchases.

---

[7]The presses were transported to Mozambique from Zimbabwe for free as part of another shipment and the savings were passed on to the buyers.

[8]Currently estimated at between 60% and 70% a year.

Seed distributions

OPEN employed four extension workers and one supervising extension coordinator in Phase I. More than 3000 farmers received training through OPEN. Much of this training took place in groups but OPEN extension workers visited many project locations as often as twice a week.[9]

The project distributed over 3 tons of seed to more than 3000 farmers in the first planting season. In the second season, more than 9 tons will be distributed to an as yet unknown, but significantly larger number of farmers. This should be sufficient for the planting of approximately 1300-1400 hectares.[10]

Development of a repair and manufacturing capacity

Nine individuals from three of the districts were given press repair training.[11] Half a dozen repairs have been completed in the field by those trainees and no significant press down-time was reported as a result of machine failures. In the coming pressing seasons, OPEN can expect a higher break-down rate as machines age, as throughputs increase, and as more, local, hard-shell seed is pressed. OPEN should encourage press owners to purchase spares in advance and possibly package a set of spare parts with all new presses to minimize down-town and reliance on OPEN staff for procurement of those parts. The project currently has 12 complete sets of spares in stock.

Manufacturing capacity is only now being investigated. This topic is discussed in detail in the recommendations section of this report.

Technical and commercial monitoring

OPEN has accumulated an impressive and seemingly comprehensive set of statistics on press utilization, break-downs, seed distribution and/or sales, oil production and sales and prices. Acreage planted and tons of seed produced have been estimated but are not as accurate as oil production figures acquired at the presses. If oil pressing figures have been under-reported by press owners as is likely then the return on investment of a press appears to be even more attractive than stated above.

In Phase I, the project staff has spent a large portion of its time monitoring, gathering and analyzing data. Together with the baseline survey, this has helped establish a body of information that will be extremely helpful in assessing the long-term impacts of the project.[12]

---

[9]Field activities have generally been focused in the area surrounding a press.

[10] The grant agreement contains a typographical error in Pt. E4b under "seed distribution." The stipulated output is inconsistant.

[11]A logistical error prevented anyone from Malema District from attending the repair workshop.

[12]Because the oilseed sector was almost entirely moribund prior to OPEN, CARE has a unique opportunity to claim that any sunflower or sesame seed production in the four districts after 1994 was due almost exclusively to the project's interventions.

However, in Phase II, OPEN will need to reassess the frequency and detail of data collection. Random sampling can replace the comprehensive data collection that has been used to date. Loan repayment rates, informal interviews and other techniques can be used as proxies for the more time-intensive approach that was undertaken in Phase I.

Institutional development with local partner (Uniao Geral das Cooperativas or UGC)

Various plans were developed with OPEN's national partner, UGC, which is a union of agricultural cooperatives in Nampula. UGC was unable to effectively fulfill its role as an extension partner and after much discussion was dropped from OPEN. A recent evaluation stated that "The UGC is facing a financial and organizational crisis of major proportions and needs to reorganize its activities to overcome the present situation."[13] The decision to drop UGC from the project appears to have been a sound one that has allowed OPEN to focus on its primary task of revitalizing oilseed production.

Although stipulated by both CARE/International and USAID, institution building and working with a national partner cannot be viewed as means unto themselves. They must be viewed relative to the primary project goal, the costs associated with partnership, and the rewards that subsequently accrue. All too often partnerships are anti-synergistic. The partnership itself becomes a drain on limited resources and produces less than what might have been otherwise achieved.

In OPEN, which seeks to re-establish the oilseed sector on a commercial, economically viable basis, working with a non-business oriented NGO is unlikely to aid in that objective. As there are no other viable organizations currently on the ground in Nampula capable of assuming actual partnership responsibilities, this stipulation should be dropped from Phase II.

Progress Toward Intermediate and Final Goals

The project goal of Phases I & II as stipulated in the project proposal was:

> "To increase the income of 76 press owners and 1,500 small-scale oilseed growers in the project area and provide 15,200 rural and urban consumers renewed access to high quality, low-cost cooking oil in 4 districts of Nampula Province by March 1998."

Phase II was initially conceived as a two year follow-on project to Phase I. Shortly after the conclusion of Phase I it is likely that more than 40 presses will be installed.[14] There are already more than 3000 growers involved in the project and that, too, is likely to increase this season.

---

[13]"COMACO Mid-term Evaluation, 1995, Final Report," page 25

[14]The 19 current press owners, plus 14 new press owners this year, plus 8 (or more) press purchases by owners who wish to expand their capacity.

Regarding the 15,200 consumers -- nearly 9 tons of oil have been produced by OPEN to date. The average per capita consumption of edible oil in the SADC region is 4.7 kg per year. If that figure is applied to oil produced by OPEN, then 12% of the target has been met. However, baseline figures indicate that most people in the target area had not consumed oil in years. It is likely to take many more years for Mozambican oil consumption to approach the regional average. Entreposto, the largest producer of edible oil in Mozambique, estimates that the current national market at 30,000 tons, or approximately 2 liters per Mozambican per year. At an average of only 1 kg of oil per rural person per year, OPEN could presume to have already provided nearly 10,000 people with "high quality, low-cost cooking oil."[15]

Prices of oil produced through OPEN were approximately 20-30% lower than the prices quoted for commercially produced oil. Several OPEN producers said they had not raised their prices to match that in the markets because their consumers could not afford "higher prices."

Intermediate Goals 1 & 3

Goals 1 & 3 were

> "76 viable oil pressing enterprises utilizing ram-press technology..." and "1,500 farmers... producing oilseed profitably on an ongoing basis."

As noted above, these two goals are well on the way to being achieved.

Intermediate Goal 2

This goal stated

> "A viable Mozambican institution providing support services to 76 entrepreneurs and 1,500 oilseed growers by March 1998."

Following the departure of UGC from OPEN, no institution has been identified that can fulfill this role. It is unclear that such an institution is necessary for achievement of the other goals. Ideally, private sector interests will provide the services that were anticipated by intermediate goal #2. For more, see the recommendations section.

Adopters and Markets

In its first year, OPEN focused on areas and farmers with oilseed experience. Now, it appears that interest in OPEN has expanded significantly to include those individuals without oilseed experience as well as those who live outside what were considered to be traditional growing communities.

[15]See "Feasibility of Small-Scale Oilseed Processing in Sofala," pg. A1-4

Press owners are a diverse cross-section that ranges from relatively unsophisticated but motivated farmers to small-scale entrepreneurs for whom the press is just one of several income earning enterprises. There are full-time owner/operators as well as small number of absentee owners whose pressing operations are run exclusively by employees. It is interesting to note that the most profitable press is owned by one of the latter, indicating that business skills, access to working capital, and education may play a key role in maximizing return on a press.

The market for oil has been predominantly within the community surrounding the press although small amounts are occasionally transported to markets (if there is one nearby). None of the 8 presses visited during the evaluation had any stocks of oil available for sale. All press operators said they had virtually none throughout the year as it is sold soon after production. Because demand for oil seemed to be greater consistently than supply, it is possible that producers could increase their prices without seeing any decrease in local demand. No doubt press operators will adjust their pricing policies in the future as they gain experience with the market.

Other Aspects of Technical and Financial Performance

Seed Yields and Supplies

Based on the amount of free seed distributed last year (3103 kgs), oil production should have been considerably higher. However, one third of that amount was "dead" sesame planting seed procured from SEMOC. This, combined with an early cessation of rains, resulted in sub-optimal yields.

In the current planting season, seed with low germination rates has again been shipped by SEMOC. This continuing problem with seed supply has absorbed a disproportionate amount of managerial time and threatens to discourage farmers who experience poor yields. On going discussions between OPEN and SEMOC have not resolved the problem.

Fortunately, OPEN arranged for multiplication fields during the first season (some sub-contracted, some grown by OPEN) and this stock, taken together with that from other sources, should insure an abundant harvest in 1996 relative the installed pressing capacity. The project is now in the process of resupplying growers who received bad seed earlier this year.

In the future, OPEN must develop contractual relations with multiple seed suppliers willing to guarantee germination rates. Entreposto has recently decided to re-enter sunflower production in Mozambique and plans to import South African seed for multiplication for the 1997 planting season. That seed will be distributed through the company's extension staff. The company has indicated a willingness to source seeds for OPEN and could become an additional supplier to OPEN growers. This year OPEN is using the Press Owners Association (POA) as a conduit through which to distribute and sell seed.

Sesame vs. Sunflower

Trials were supposed to take place during the first planting season to determine the relative advantages of the two different oilseeds. Because the sesame provided by SEMOC had a very low germination rate (8%), trials were not possible. The relative theoretical merits of the two seeds are well known but the effective, in the ground, through the press figures should be determined in Mozambique by OPEN for dissemination among planters and press owners. OPEN plans to do this in the current season.

Profitability

At the Press

At the press level, profitability is determined by the cost of the press, rates of utilization, service pressing[16], and down time, as well as labor costs and the price of pressing seed and oil produced. Purchasing seed for pressing has proven most profitable for press owners but 3 of the 19 owners, in lieu of working capital or for personal reasons, opted only to do service pressing.

In the first pressing season, OPEN calculated that approximately one ton of sunflower seed had to be pressed for a press owner to reach break-even on his or her investment of $200. With nearly 40 tons of seed pressed and just 19 presses in the field, the average press exceeded the break-even point by more than 100%. Subsequent years of pressing will yield very high rates of return on investment.

The high level of profitability indicates that the price of the press can easily be raised to include procurement, transportation and installation costs, most likely without diminishing demand for the presses. As detailed in the recommendations section, OPEN should reprice the press upwards to incorporate these costs.[17]

In the Field

As noted in the project proposal, both sesame and sunflower cultivation are less labor and input intensive than other cash crops grown in Mozambique such as tobacco and cotton. A very modest harvest to planting ratio of sunflower seed is 50 kgs harvested for every 1 planted (for sesame 60:1). Both are often intercropped so there can be little additional labor required for land preparation. Furthermore, during the oilseed planting period, the opportunity cost of labor for many rural farmers is very low. These factors make oilseed cultivation attractive and profitable for many small scale farmers.

Cost Effectiveness

[16]Service pressing refers to a barter like system in which the seed is pressed in return for either a fee or a share of the output.

[17]Because of the rapid depreciation of Mozambique's currency, prices for inputs sold to customers should be fixed in dollars and converted to meticais. Local prices should be adjusted at least every quarter.

As a pilot project, cost was not a primary consideration in Phase I. It is, therefore, not particularly fair to critique the project for its current cost structure. Had this been a concern at the time of design, some of the following might have been done:

- Site selection should have included ease of access and staff travel time as one of the criteria. Far-flung locations severely reduce time available for extension and promotion while increasing transportation costs.

- A review of staff productivity rates in other oilseed projects to establish a reasonable basis for assessing employee performance. The project proposal was concerned about agronomic productivity in other countries but did investigate the experience with human productivity. If it had, then perhaps OPEN would have established a more ambitious level of outcomes for its pilot phase.

Gender Related Issues

Only one of the 19 presses currently installed is owned by a woman. Nevertheless, both planting and oil pressing appear to be activities that involve family units.[18] The selection of the BP-30, which is easily used by a single female operator, has allowed the participation of women in press operations as employees and as effective co-owners with their husbands Furthermore, OPEN has encouraged wives to attend all training sessions with their husbands/owners as a way of fostering female participation in the project.

Two of OPEN's four extension workers are female. The project believes this will encourage women to more freely participate in the project.

Crop and Land Allocation

As detailed in the project proposal, oilseeds in Mozambique do not compete directly with other cash crops. Seasons overlap but do not coincide. Oilseeds are frequently inter-cropped with maize, sorghum and legumes, and do not compete for the same land. To date, there is no indication that oilseeds have had any impact on the planting rate of other crops.

Unexpected Outcomes

There have been several positive unexpected outcomes of OPEN. Several press owners have used their profits to develop petty trading operations in their communities. Other NGOs, having observed OPEN's success, have expressed interest in developing their own oilseed projects or have purchased presses. It appears that press owners, particularly less sophisticated ones, have experienced a new sense of respect and status within their communities.

[18] See Baseline Survey results.

Recommendations for Phase II

The evaluation team recommends that the following steps be taken in Phase II:

- **Institute a commercial, cost-conscious, private sector orientation throughout the project**

The success of Phase I of OPEN can only be sustained over the long-run if market driven forces are introduced into the project. If it can be demonstrated that the services now provided by OPEN can be profitable ventures, then entrepreneurs will be induced to enter the oilseeds sector and gradually take up the role now played by OPEN.

In Phase II, OPEN must approach oilseed cultivation and oil processing much in the way a profit motivated, commercial enterprise might.[19] The private sector must be thought of as the delivery channel of choice. Private enterprises must be thought of as institutional partners. This transition in thinking will require several radical changes from the approach taken in the pilot.

- **Rapidly expand the number of presses in the field within the four districts**

The potential size of the market must be determined before established businesses will be willing to take a chance on it. The press is the engine that drives oilseed cultivation. OPEN must install as many presses as the market will bear to learn just what the potential market is for presses, pressing seed and oil. Determining the actual size of the market among a given population will be one of the key findings of Phase II that can be used to sell the technology and approach to the private sector.

Given Phase I's success, there might be a temptation to expand the project's geographic coverage. It is too soon to risk dissipating OPEN's limited resources and expertise over a larger area. For the time being, OPEN should concentrate its resources in the four districts until those markets are saturated. That will establish the size of potential markets and will also clarify what level of human resources are needed to launch the product in other areas - perhaps in a subsequent phase that expands OPEN in new territories. Should Phase II reach the saturation point before the end of the project period, then OPEN can expand into contiguous districts.

[19]Point #2 of the Scope of Work requested "development of a private sector, market based, commercialization strategy for the dissemination of both seeds and presses."

- **Institute pricing and service policies that reflect actual costs**

This will determine whether or not there is money to be made throughout the oilseed sector. That, together with market size, is what will attract the attention of the private sector interests able to sustain and expand on OPEN's initiatives.

The press must be priced to reflect actual costs of purchase, procurement, transport and installation. An additional "mark-up" should be included that reflects what a local agricultural implements supplier would charge if he were stocking the press for sale. No private entity will become interested in importing or manufacturing the press locally unless doing so is profitable. If OPEN (or any other development project) subsidizes press sales, that will keep the private sector out of the business. If OPEN sells sufficient numbers of the press at a profit-making price local sellers of agricultural implements may become interested in carrying the press. OPEN can supply them with contact information and let them do the importing. Another approach would be to put out tenders for the supply of a certain percentage of the presses OPEN believes it will need and see if the private sector will respond. This would be a way of gradually co-opting private enterprises into the procurement, inventory, and sales of oil presses.

The price of planting seed must also be raised. In the absence of the project, subsidized seed may not be available and farmers will have to pay a higher rate. OPEN's system of using seed sales agents is an excellent one,[20] but might leave the agents in the lurch if subsidized seed were to disappear. By charging market prices for seed, the project will insure that its network is based on market realities that should continue after the project has ended.

- **Institute measures of employee productivity that maximize project outputs**

Under Phase I, OPEN provided services to customers along the entire vertical spectrum of the sector with the exception of oil sales. OPEN sourced seeds and presses. The project provided transportation of materials. Training was given on agricultural and business subjects as well as on press operations. All of this was necessary to kick-start the project.

Under the new, commercial orientation, a new approach to the customer must be developed that does not shirk the agricultural demands of small scale farmers but that emphasizes sales first. More presses per agent translates to a lower cost of the project per press sale and, hopefully, a lower cost for every liter of oil produced. If OPEN can demonstrate that the press is a high margin item with significant annual sales then it is likely commercial interests will develop an interest in taking over the sales function.

At the same time, OPEN may wish to rethink the "extension worker" job position. "Extension worker" could become "extension agent" or even "sales agent." OPEN should give deep consideration to changing the remuneration scheme to include incentives based on quantifiable performance such as press sales, loan repayment rates, and yield rates in the fields and at the presses. Furthermore, the project should reconsider the utility of having an

[20] OPEN currently uses a network of seed agents who are paid 10% commissions on their sales.

extension coordinator who, in Phase I, had no direct sales responsibility. With a field staff of only 6, having two people outside the sales function may limit growth of the project.

If OPEN shifts to this new approach, then each agent must be given the authority as well as the responsibility for meeting goals in a way he or she thinks best. Chances are this will lead to an optimization of employee effort.

- **Concentrate new sales within the existing perimeter of current press locations**

For pilot purposes, many of the Phase I sites were located remotely from each other. For OPEN to dramatically increase sales, the territories currently covered by the extension workers will have to be rationalized. Wherever possible, sales should be made along the same routes to minimize agent travel time. Extension workers should be encouraged to "connect the dots" between current customers.

- **Open press sales to qualified buyers outside the current target area**

Unsolicited buyers willing to pay cash should be given short intensive training on the press and allowed to buy it with the understanding that OPEN is not obligated to provide follow-up services (especially if the buyer lives outside the target zone). This is essentially what a rural consumer will receive from a private supplier. It is also another way of determining how useful OPEN's current package of extension services really are.

- **Rapidly push the project toward "critical mass"**

Critical mass is the volume of oilseed production necessary to induce buyers from outside the local market to enter and compete for production. The market for locally pressed oil is finite, requiring only a limited volume of seed. But the outside market for oilseed can be limitless from the point of view of the individual farmer. OPEN will truly succeed if introduction of the ram press stimulates production to the point that the communities are able to satisfy their own needs for edible oil while producing a new cash crop. In actuality, many OPEN farmers are already viewing oilseed production as their next cash crop.

Based on the 19 presses installed to date, it is impossible to know what the ultimate market for small presses may be, but the evaluation team believes that the figure of 400 mentioned in the project proposal as a target for Phase III is not unrealistic. One of the extension workers expressed his ability to place 50 presses this year. If OPEN could sell 200 presses by harvest 1997, this would be likely to stimulate a demand pull for oil seed by the Entreposto industrial plant in Monapo. A key finding of Phase II will be to establish exactly how many presses are needed in the field to reach this threshold level.

The Monapo facility was recently expanded from a refining capacity of 4,500 tons per year to 11,000 tons. The plant currently processes cottonseed and copra but management is keen on restarting production of sunflower oil. Minimum processing batches are 300-400 tons. With moderate agricultural yields, that tonnage could easily be stimulated by 100-200 BP-30s. This would then be the "critical mass" required for the private sector to become one

of the main markets for oilseed. For its part, Entreposto plans to distribute sunflower seed for the coming planting season which should further stimulate the market.[21]

- **Defer local manufacture of the press**

While building local capacity may be worthwhile in and of itself, it has little relevance to the primary goals of enhancing farmer income and food security. In line with the recommendations made above, the most important issue surrounding the press is getting as many as possible as quickly as possible into viable commercial locations in the field. There is no possibility of having presses made in Nampula in time this year, so importation is the sole option at the moment.

This could change in the future. OPEN can revisit the question of local manufacture on an annual basis. Currently, there are several stumbling blocks. Foremost among them is the lack of raw material required for fabrication of the press. Until this problem is addressed there would be little point in training local fabricators.

If the raw material constraint is removed, then a re-assessment of Nampula manufacturers can be undertaken. During the evaluation, three shops were visited. All had the equipment necessary to manufacture the BP-30. However, none was accustomed to producing for stock or to fabricating uniform products using jigs and fixtures. The largest of the three was a grossly underutilized government owned facility. The two others were smaller, more dynamic businesses. Any of the three would require 6-8 weeks training followed up with regular supervision from an OPEN technical advisor. Whether this would ultimately lead to a low-cost, competitive press being manufactured locally is unknown. Because of Mozambique's unusual geography and inadequate transportation network it is possible that a press made in Nampula might not be competitive with imports if sold elsewhere in the country.

Because OPEN is likely to depend on imports for the foreseeable future, the project should address the issue of **spare parts** now. New presses should be offered with spares as part of the purchase. Ideally, these spares will suffice for the life of the press.

Press buyers should be informed that if they choose not to buy spares they will be responsible for obtaining them (from OPEN or local suppliers). OPEN cannot afford to make house calls.

- **Defer geographic and technological expansion of the project**

As noted above, there is little point in expanding the project out of the four districts and dissipating limited resources until all that can be learned has been learned and the saturation point has been reached. OPEN may, however, pursue a consulting arrangement

[21] A very interesting strategy worth investigating would be to see if Entreposto would be interested in selling the presses in non-OPEN areas as a way of generating excess production to be bought and processed in the Monapo plant. This strategy was successfully employed by an industrial sesame processor in Kenya.

with other organizations wishing to introduce the oilseed sector in other parts of Mozambique. This should be done on at least a cost-sharing basis but could also be undertaken by OPEN as a profit center.

Once the saturation level has been reached in the four Nampula Districts, OPEN can approach territorial expansion in two ways.

In the first, it can begin a gradual expansion into neighboring districts. This will keep units costs down while expanding the market. It can be used, for example, to link the Namapa District with the 3 Districts in Western Nampula.

Because Mozambique is segmented into distinct geographic and economic zones, a second approach can be used to leap-frog the project into areas that wouldn't be reached by the first approach except after a number of years. OPEN can utilize all the learning it has achieved in Phases I & II in Nampula to rapidly introduce oilseed enterprises in a highly cost-effective way. In the future, "pilot" phases in new areas can be made much more aggressive with an immediate orientation toward achieving regional critical mass.

Regarding technological expansion, OPEN has already tested two hand-powered maize mills, but these did not prove to be commercially viable. A treadle pump for lifting and delivering water has been considered but given Nampula's difficult transportation network, the market for irrigated garden crops appears to be limited. For the time being, OPEN should retain its focus on oil production and the proven BP-30.

- **Improve and diversify the sources of planting seed**

The difficulties OPEN has experienced with planting seed is detailed above and in the quarterly reports. By the end of Phase II, OPEN must be out of the seed procurement and supply business. Introducing higher prices will help, but probably will not be sufficient to insure farmers of a regular supply of seed. What is more likely is that even before "critical mass" is achieved, industrial oil producers will make seed stock widely available (as is now done for cotton and tobacco growers). Entreposto plans on doing this for the coming season. Ideally, this will place pressure on SEMOC to improve its quality control.

In the meantime, OPEN must advance its seed procurement process so that seed can be acquired and tested far ahead of the planting season. Discussions should be held now with SEMOC and Entreposto in anticipation of next year's planting. OPEN should investigate other sources of seed and, if possible, link them to commercial seed suppliers in Nampula. This could include seed importers, new local multipliers and the SEMOC seed farm in Nampula.

In the meantime, OPEN must continue its contract growing multiplication schemes as a back-up supply. The project should put growers in touch with buyers wherever possible so that that OPEN can remove itself as an intermediary between seed suppliers and oilseed growers. By removing the 90% seed price subsidy, OPEN will also encourage natural business relationships between suppliers and growers. Press owners are logical seed

distribution point and they should either be encouraged to multiply seeds for sale or be put in touch with contract growers and industrial suppliers.

- **Base relationships with other organizations on solid business or agricultural grounds**

The objective of the project should be to partner with private individuals and enterprises able to support and grow the oilseed sector after OPEN. The objective should not be to develop an institution to do what private entities will do in their own financial self-interest. Therefore, the stipulation that a local NGO be a project partner must be dropped. As noted above, for the project to become sustainable and commercially viable, profit seeking enterprises must be viewed as partners. The private sector must become the delivery channel. Only in this way can the project assure that its initiatives will be carried on after the end of grant funding.

There is currently discussion regarding the introduction of oilseed enterprises to other parts of the country in collaboration with other NGOs. If this is done, those NGOs must recognize and accept the importance of the profit-motivated approach to be undertaken by OPEN in Phase II. If any NGO opts to subsidize the development of the oilseed sector it will in actuality threaten the sector's long term viability by keeping private sector interests away. The expertise acquired by OPEN makes it a logical administrator, consultant, trainer and supplier for any new oilseed project.

The Ministry of Agriculture in Nampula has several hundred extension workers distributed throughout the province. Many of these employees are poorly paid and have very few resources available to them. Nevertheless, they are a presence in the field and OPEN could sponsor an annual series of low-cost extension workshops to promote the press and oilseed cultivation. Such workshops do not need to be expensive affairs entailing travel and per diem expenses but could be piggy-backed with other Ministry of Agriculture events whenever they are held in the district seats.

In Phase I, a partnership arrangement was also developed with Appropriate Technology International. ATI is the prime mover behind the development of the ram press. In the course of Phase I, ATI provided valuable inputs. These included technological and business training, training of repair artisans, field demonstration techniques, and commercialization strategies. A study tour for OPEN staff to Tanzania's T-PRESS Project and Zimbabwe's ZOPP was coordinated by ATI as was participation at the recent Regional OILS conference in Harare. ATI made its vast experience and information resources available to OPEN and CARE. ATI is also participating in this evaluation.

In CARE's view, ATI's short-comings were its reactive involvement in the project as demonstrated by its lack of response to quarterly implementation reports. Additionally, ATI was not forth-coming with fundraising for the project as was agreed upon in the Memorandum of Understanding between ATI and CARE.

As such, CARE feels the relationship with ATI has been one of a client and a consultant, not the true partnership envisioned. While CARE is pleased with the critical inputs ATI has provided in Phase I, they would like a different arrangement in relationship in Phase II. OPEN plans to call upon ATI (or any other sources for technical and business advisory services) on an "as needed" basis. The evaluation team recommends continued relationship with ATI but on a contractual rather than a formal partnership framework.

Summation

The OPEN project is extremely well positioned to achieve major impacts in Phase II and beyond. The BP-30 has proven itself as the engine that can stimulate oilseed production in rural Mozambique. At modest yield assumptions, the amount of planting seed distributed this year could result in a harvest of several hundred tons - vastly more than last year and an amount that would overwhelm the pressing capacity now on the ground.

This is an opportunity rarely seen by development projects. Temptations to broaden the scope of the project or expand it prematurely could harm OPEN's chances to solidify its early success. Once a large number of presses are installed and operating in Nampula, the project can then consider expansion. For at least this season and next, OPEN should retain its technological and geographic focus while building the commercial viability of the small-scale oilseed sector.

The OPEN staff has done an excellent job of meeting the outputs of the project plan. The staff must now take its considerable expertise and combine it with the new approach described in this report so that OPEN's very successful debut will come to full fruition in a sustainable and commercially viable oilseed sector in Nampula.

Appendix A

SCOPE OF WORK
OPEN-EVALUATION
PHASE ONE

CARE-NAMPULA plans to be conduct an evaluation of the pilot phase of its project entitled, "Oil Press Enterprises in Nampula" (OPEN). The evaluation team, composed of two members, will examine the performance and impact to date of the project and make recommendations for future activities and strategies of the project.

The evaluation team's members will be:

TEAM LEADER: CARE African Regional Technical Advisor for small enterprise. His responsibilities will include: a) coordinate division of responsibilities and finalization of workplans; b) coordinate preparation of final document; c) ensure that forward planning is compatible with CARE-Mozambique's Long Range Strategic Planning Document.

ATI REPRESENTATION: ATI will be represented on the two person evaluation team. This team member will place particular focus on commercialization, local press manufacturing capacity, and monitoring and reporting systems.

PROJECT DESCRIPTION

OPEN's goal is to increase income for smallholder farmers and oil press owners in four districts of Nampula Province. The projects strategy to accomplish this goal is to provide improved oilseed and extension services to farmers, sell oil presses, provide business training to oil press owners, and to establish a local manufacturing capacity in the province that will provide quality presses at competitive prices. The pilot phase of the OPEN covers an 18 month period, October 1994-March 1996. The evaluation team will assess the progress made under the pilot phase, and modifications made during the course of implementation to the original design. Recommendations for further modification may result from the evaluation.

OPEN's primary interventions are listed below:

- promotional efforts to demonstrate and advertise the profitability of oilseed processing with the ram press;
- promotion of improved varieties sunflower and sesame seed;
- provision of credit for press purchase;
- training and follow-up technical assistance to entrepreneurs in the use and maintenance of the press;
- training and follow-up technical assistance to local manufactures and rural artisans to fabricate and repair the press;
- assistance to press owners in successful business strategies.

Additions and modifications will be a product of the evaluation.

TIME FRAME

Members of the evaluation team will be supplied with relevant project documents prior to arrival in Nampula. The documents will include; Project Implementation Reports, the Grant Agreement with USAID and Canadian Food Grains Bank (CFGB), the project proposal, the baseline data, and supporting documentation, including Michigan State University/Ministry of Agriculture documents/data and the CARE Mozambique Long Range Strategic Plan.

The evaluation will take place in early January 1996. An illustrative schedule is described below.

Day 1	Meetings with CARE Maputo Deputy Director Program/Country Director; Briefing with USAID, document review (Maputo).
Day 2	Arrival in Nampula, Discussions with Project Manager and Extension Supervisor, meeting with MSU, UGC, DPA.
Day 3	Review of documentation and monitoring data
Day 4	Early AM departure for Malema. Afternoon discussions with OPEN extensionist/local government
Day 5	Visit press enterprises in Malema and Ribaue.
Day 6	AM discussion with local government, visit with 2 press owners (1 Ribaue, 1 Mecuburi). Sleep in Mecuburi
Day 7	AM discussion with local government. Visit oil businesses in Momane and Inchua in Mecuburi, and Muanona in Namapa. Sleep in Namapa town.
Day 8	AM visit with local authorities/Namapa. Visit presses in Jacoco (2). Return to Nampula.
Day 9	Follow-up meetings with DPA and UGC as necessary; Visits to potential local press manufacturers/machine shops
Day 10	1/2 day discussion of write up, PM return to Maputo
Day 11	Discussion with CD + DD/P, rest of day write up
Days 12-13	Write up
Day 14	Departure

An evaluation debriefing will be held with the USAID representatives in Maputo prior to departure. The draft evaluation report will also be provided to CARE and USAID for comment prior to finalization. Comments will be incorporated into the final version no later than 3 weeks after departure.

PRODUCTS OF THE EVALUATION

I. ASSESSMENT OF PROJECT PERFORMANCE:

A document describing project progress towards intermediate goals and indicators, as well as performance against anticipated outputs will be the first product of the evaluation.

1. An Analysis of financial and Technical Performance of press and oilseed production which incorporates the following issues:

Characteristics of adopters and markets
Technical viability & Economic viability
Future environmental sustainability in terms of neutral or positive environmental impacts and dependable, easy, and low cost access to raw materials;
Relevant technical skills of activity staff;

Repair capacity;
Market demand & social acceptance/viability

The above should also incorporate explicit discussion of any relevant gender considerations.

2. Relative merits of sesame and sunflower, including production costs (the amount and timing of labor requirements, farmgate prices, susceptibility to pests, diseases, and droughts, yield and soil content);

3. Assessment of whether or not land competition has proved to be an issue (and if so, for whom), and the opportunity costs of investing in oilseeds as opposed to other cash crops.

4. Efficiency and effectiveness of program level interventions (design and delivery)

5. Review of partnership arrangements between CARE, ATI, and UGC, including recommendations for future institutional relationships:

6. Assessment of project progress towards the final and intermediate goals and indicators, based on available data (baseline and monitoring system results).

7. Discussion of unintended results, if any, both positive and negative.

8. Assessment of project achievement of Phase I outputs and targets, as listed in the proposal and the Grant Agreement with USAID.

9. Assessment of the Project's cost-effectiveness;

10. Assessment of the impact of Grant-funded activities on children under 5 and women.

II. PLANNING DOCUMENT FOR PHASE II

Based on the evaluation results, the Planning Document should include recommendations on the following:

1. Strategy for the development of a local press manufacturing capability.

2. Development of a private sector, market based, commercialization strategy for the dissemination of both seeds and presses.

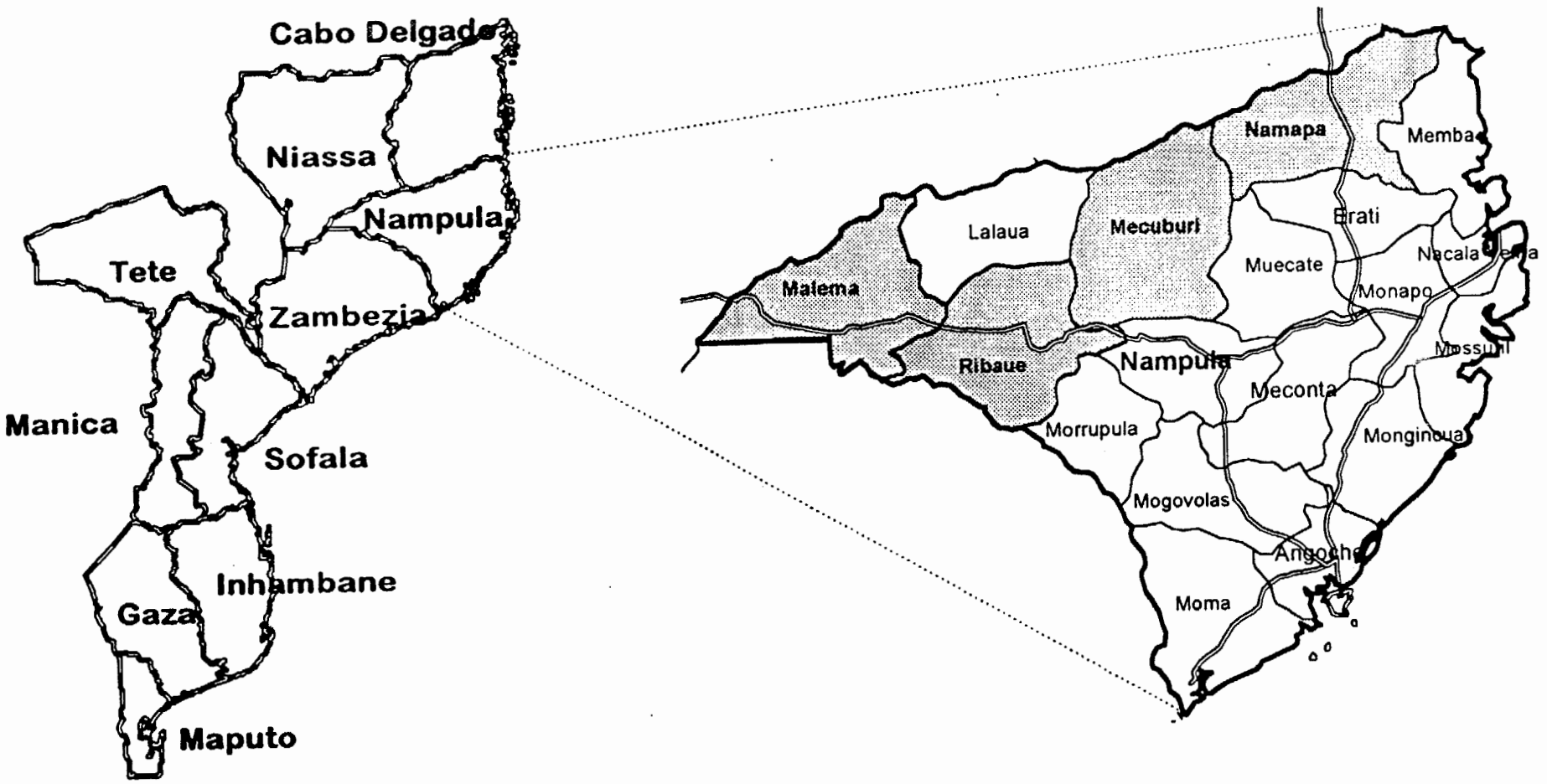
3. Expansion strategy for the project into new geographical and technological areas.

4. Strategy for ensuring future supplies of seed produced in Nampula Province through private commercial channels.

5. Institutional relationships of the projects with government agencies and local NGOs.

The Provincial Agricultural Directorate's will provide information to be incorporated into the planning document related to priorities in agricultural development. The planning document should take this into account.

MOZAMBIQUE
NAMPULA PROVINCE



MAP NOT TO SCALE

Appendix C

List of Contacts Made

In Maputo

Beat Rohr, CARE, Country Director
Nina Bowen, CARE, Assistant Country Director
Terrence Ratigan, CARE, Assistant Country Director
Hugh Allen, CARE/RTA
Mark Langworthy, Consultant on Monetization Strategy and
Agricultural Economist, University of Arizona

Rogerio B. Nunes, Administrador, Entreposto (Mozambique's largest edible oil producer)

At USAID/Maputo

Sidney Bliss, Project Officer
Andy Krefft, PVO Project Manager
Robin Mason, Rural Development Specialist
Ricky Weiss, Technical Officer

Sam Tedesco, Consultant, Management Systems International
Jane Tomlinson, Consultant, Oilseeds Sector

In Nampula Province

CARE/Mozambique
Bill Messiter, OPEN Project Coordinator (and sub-office coordinator)
Estevao Amrmando, Extension Supervisor
Francisca Oloco, Extension Worker, Malema District
Jose Mendoso, Extension Worker, Ribaue District
Joao Lameiras, Extension Worker, Mecuburi District
Mariana Ussene, Extension Worker, Namapa District

Government of Mozambique

Victorino Xavier, Director of Agriculture, Nampula Province
District Administrators in Malema, Ribaue, Mecuburi and Namapa Districts
District Agricultural Officers in Malema, Ribaue, Mecuburi and Namapa Districts
Pedro Gadaga Victorino, Manager, "Agostino dos Santos, lda," a state owned machine shop
Armando Joao, Technical Manager, "Agostino dos Santos, lda"
Pedro Eliag Niquea, Manager, CATM (Centro de Apoio Technico as Moageiras), a state owned machine shop

A brief inspection visit was also made at "Semetal," a small welding and metal fabrication shop in the Napipine section of Nampula.

Visits to press owners were made at:
Manhame (Melema District)
Malema Town
Colemela (Ribaue District)
Joseph Samoa
Namina
Momane (Mecuburi District)
Ratane
Nametamula (Namapa District)
Jacoco One

Future-press sites:
Coop location (Malema)

Appendix D

Abstract of Project Implementation Report for the quarter ending 12/31/95

PRODUCTION FIGURES

ITEM	PRODUCTION TO DATE
Seed Processed	38,384 Kgs.
Oil Produced	8,721 Liters
Seed Cake Produced	37,000 Kgs.
Oil Sold	4,872 Liters

CARE - Mozambique						
Oil Press Enterprises in Nanpula						
Summary of Outputs/Activities to Date						
Grant # 656-0217-G-00-5001-00						
Reporting Period: Oct-Dec 95						
[illegible]		[illegible]		[illegible]		[illegible]
ACTIVITY		TOTAL		TARGET		REMARKS
[illegible]		[illegible]		[illegible]		[illegible]
1. PROMOTION OF SEED BY SMALL HOLDERS						
# farmers assisted/extension services		3233		1500		Total Accumulated
HA under oil seed cultivation		684		180		Estimated:
# on farm trials done		3		16		
CARE extensionists		4		4		
UGC Extensionists		0		4		UGC no longer working with project

2. SELECTION OF TARGET ZONES					
# target zones selected		35		16	Includes 17 new sites/1996 season
# target zones dry season potential		0		10	Not viable w/out irrigation
# target zones where OPEN active		35		16	
# ext agents trained for demonstrations		7		12	
% ext agents are women		50%		50%	CARE Ext's, not include farmer leaders
# participants attending demonstrations		3130		1600	
# demonstrations done		20		30	
4. SEED DISTRIBUTION					
# kg free seed distributed		3103		2560	
# farmers received free seed		2625		1000	
# HA planted w/ free seed		648		400	
# kgs harvested from free seed		344000		100000	Overestimated
# kgs seed sold		0		25000	December to February 96
# purchasers of seed		0		1000	December to February 96
# HA planted w/ seed		0		500	December to February 96
# kgs harvested from seed		0		20000	June-August 1996

5. PRESS INSTALLATION					
# presses rented		0		16	All presses sold rather than leased
# presses sold		19		0	
# presses undistributed		9		0	6 BP30's reserve/3 unsold New Dawns
# sessions for seed procurement/mkting		>32		32	2 formal meetings/many indiv visits
# persons participating in above		36		50	Formal Trainings only. Does not include ext visits
# appropriate business plans developed		18		1	informal
DEV. REPAIR/MANUF. CAPACITY					
# repair artisans trained		9		8	Trained May 95
# repair artisans working		4		4	
# presses repaired		6		4	
# financial & tech. analysis completed		38		1	Break Even Analysis, conducted 2Xs

					each press. No technical done.
7. TECHNICAL + COMMERCIAL MONITORING					
# questionnaires developed		1		1	
# monitoring visits to press owners		160		96	Aver 1.5 wk/4districts/16 weeks
# persons participating sample survey		18		10	Baseline administered to all owners.
quantity of oil produced		8721		10000	Production continues
quantity of seed cake produced		28788		25000	Production continues
# service pressers		626		800	Production continues
# people employed by press enterprises		55		48	employees, family members, owners
8. DESIGN OF CREDIT SCHEME					
# designs completed		1		1	100% of Loans Re-Paid. Nov 95
9. INSTITUTIONAL DEVELOPMENT OF UGC					
# UGC personnel trained		19		19	PRESS ASSOCIATIONS REPLACED UGC AS PARTNER SEPT. 95
# workplans developed		N/A		NA	
[illegible]		[illegible]		[illegible]	[illegible]

Appendix E

Methodology

The Evaluation was undertaken using a mix of techniques including:

An extensive literature review of relevant (see Appendix F).

Extensive interviews and discussions with CARE Mozambique Maputo staff, OPEN project field staff, government authorities (including the District Administrators and District Agricultural Officers in the four project districts), as well as oilseed growers, farmer leaders, and press owners.

Field visits to project districts and first hand observation of project staff and participants, and field conditions. Discussions centered on attitudes and aspirations of participants and listening to their assessment of project impact on their lives as well as a review of lessons learned with project staff and participants.

The Evaluation Team benefited immensely from the active support and participation of the OPEN project staff as well as the intellectual and linguistic abilities provided by the Director of Agriculture in Nampula Province, Sr. Victorino Xavier, and Prof. Mark Langworthy of the Department of Agricultural Economics at the University of Arizona, Tucson.

Appendix F

Documents Reviewed

"Baseline Survey Report for OPEN Project," January 1996, CARE/Mozambique

"COCAMO Mid-Term Evaluation, 1995, Final Report," Marleyn, Carrilho and Lambert-Madore, September 1995

"The Determinants of Household Income and Consumption in Rural Nampula Province: Implications for Food Security and Agricultural Policy Reform," Ministry of Agriculture/Michigan State University, no date

"Feasibility of Small-Scale Oilseed Processing in Sofala," undated

"Financial Analysis of the CAMARTEC Press in Mozambique," ATI 1994

"Interim Report, Monetization of Canadian Canola Oil donated by CFGB," no date

"Land Tenure Issues in Post-War Mozambique: Constraints and Conflicts," Gregory Myers, Land Tenure Center, University of Wisconsin, April 1993

"Long Range Strategic Plan, FY 1996-2001," CARE/Mozambique, September 1995

"Maize Marketing and Pricing Study - Mozambique, Executive Summary," Jonathan P. Coulter, Natural Resources Institute, May 20, 1995

Memorandum regarding Canadian Food Grains Bank MOU, January 1996

"Memorandum of Understanding between Appropriate Technology International... and CARE International/Mozambique, for the period 1 November 1994 to 31 October 1996."

"Oil Press Enterprises in Nampula (OPEN), October 1994 - March 1998, Project Proposal," CARE/Mozambique

"Project Implementation Report," October-December, 1994, CARE/Mozambique

"Project Implementation Report," January-March, 1995, CARE/Mozambique

"Project Implementation Report," April-June, 1995, CARE/Mozambique

"Project Implementation Report," July-September, 1995, CARE/Mozambique

"Project Implementation Report," October-December, 1995, CARE/Mozambique

"Statistical Report on Gender," Paul J. Strasberg, January 1996, informal reporting of data

"Trip Report, Tanzania-Zimbabwe, October-November 1994," CARE/Mozambique

"USAID Grant Agreement for OPEN Project," November 30, 1994